**AMENDMENTS TO THE CLAIMS**

1-57. (Canceled)

58. (New) A converging element which converges a first light beam from a first light source used for recording and/or reproduction for a first optical information recording medium having a first transparent plate and converges a second light beam from a second light source used for recording and/or reproduction for a second optical information recording medium having a second transparent plate thicker than the first optical information recording medium, the converging element comprising an inner region near a center axis of the first and second light beams and an outer region far from the center axis and adjacent to said inner region;

wherein when the first light beam comes in said inner region and said outer region to be focused onto a recording layer formed on the first transparent plate of the first information recording medium, the first beam is converged on the recording layer such that spherical aberration of the first light beam transmitting said outer region becomes minimum for the first thickness of the first optical information recording medium; and

wherein when the second light beam comes in said outer region to be focused onto a recording layer formed on said second transparent plate, the second beam is converged on the recording layer such that spherical aberration of the second light beam transmitting said inner region becomes minimum for a transparent plate having a thickness between the first and second thicknesses.

59. (New) The converging element according to claim 58, wherein said converging element is an object lens.

60. (New) The converging element according to claim 58, wherein a direction of a phase of the first light beam transmitting an innermost position of a plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

61. (New) The converging element according to claim 60, wherein a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture have a following relationship:

0.7 * NA of entire aperture ≤ NA of inner region ≤ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.

62. (New) The converging element according to claim 59, wherein a direction of a phase of the first light beam transmitting an innermost position of a plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

63. (New) The converging element according to claim 60, wherein a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture have a following relationship:

0.7 * NA of entire aperture ≤ NA of inner region ≤ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.

64. (New) An optical head comprising:

a first light source which generates a first beam used for recording and/or reproduction for a first optical information recording medium having a first transparent plate;

a second light source which generates a second beam used for recording and/or reproduction for a second optical information recording medium having a second transparent plate thicker than the first optical information recording medium; and

a converging element which converges the first light beam from said first light source onto the first optical information recording medium and converges the second light beam from said second light source onto the second optical information recording medium;

said converging element comprising an inner region near a center axis of the first and second light beams and an outer region far from the center axis and adjacent to said inner region;

wherein when the first light beam comes in said inner region and said outer region to be focused onto a recording layer formed on the first transparent plate of the first information

recording medium, the first beam is converged on the recording layer such that spherical aberration of the first light beam transmitting said outer region becomes minium for the first thickness of the first optical information recording medium; and

wherein when the second light beam comes in said outer region to be focused onto a recording layer formed on said second transparent plate, the second beam is converged on the recording layer such that spherical aberration of the second light beam transmitting said inner region becomes minimum for a transparent plate having a thickness between the first and second thicknesses.

65. (New) The optical head according to claim 64, wherein said converging element is an object lens.

66. (New) The optical head according to claim 64, wherein a direction of a phase of the first light beam transmitting an innermost position of an incident plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

67. (New) The optical head according to claim 66, wherein a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture have a following relationship:

0.7 * NA of entire aperture $\leq$NA of inner region $\leq$ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.

68. (New) The optical head according to claim 65, wherein a direction of a phase of the first light beam transmitting an innermost position of an incident plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

69. (New) The optical head according to claim 68, wherein a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture having a following relationship:

0.7 * NA of entire aperture $\leq$ NA of inner region $\leq$ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.

70. (New) An optical information recording an reproducing apparatus comprising:

a first light source which generates a first beam used for recording an/or reproduction for a first optical information recording medium having a first transparent plate;

a second light source which generates a second beam used for recording and/or reproduction for a second optical information recording medium having a second transparent plate thicker than the first optical information recording medium;

a converging element which converges the first light beam from said first light source onto the first optical information recording medium and converges the second light beam from said second light source onto the second optical information recording medium;

a photodetector which receives a light reflected from the each of the optical information recording media to convert it to an electric signal; and

a signal processor which distinguishes the type of optical information recording medium and reads information selectively from the electric signal;

wherein said converging element comprises an inner region near a center axis of the first and second light beams and an outer region far from the center axis and adjacent to said inner region;

wherein when the first light beam comes in said inner region and said outer region to be focused onto a recording layer formed on the first transparent plate of the first information recording medium, the first beam is converged on the recording layer such that spherical aberration of the first light beam transmitting said outer region becomes minimum for the first thickness of the first optical information recording medium; and

wherein when the second light beam comes in said outer region to be focused onto a recording layer formed on said second transparent plate, the second beam is converged on the recording layer such that spherical aberration of the second light beam transmitting said inner

region becomes minimum for a transparent plate having a thickness between the first and second thickness.

71. (New) The optical information recording and reproducing apparatus according to claim 66, wherein said converging element is an object lens.

72. (New) The optical information recording and reproducing apparatus according to claim 70, wherein a direction of a phase of the first light beam transmitting an innermost position of an incident plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

73. (New) The optical information recording and reproducing apparatus according to claim 72, wherein a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture have a following relationship:

0.7 * NA of entire aperture $\leq$ NA of inner region $\leq$ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.

74. (New) The optical information recording and reproducing apparatus according to claim 72, wherein a direction of a phase of the first light beam transmitting an innermost position

of an incident plane of said outer region is forward relative to a phase of the first beam transmitting a outermost position of an incident plane of said inner region.

75. (New) The optical information recording an reproducing apparatus according to claim 74, where a numerical aperture, NA, of the plane of said inner region and a NA of the entire aperture have a following relationship:

0.7 * NA of entire aperture ≤ NA of inner region ≤ 0.8 * NA of entire aperture,

wherein the phase shift of the light beam transmitting the innermost portion of the plane of said outer region to that of the light beam transmitting the outermost portion of the plane of said inner region has a value between 50 and 150 degrees.